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- ART. IV. — 1. *Indian and Pioneer History of the Saginaw Valley, with Histories of East Saginaw, Saginaw City, and Bay City, from their Earliest Settlements. Also, Pioneer Directory and Business Advertiser for 1866 and 1867.* Compiled and published by Thomas and Galatian, East Saginaw, Mich. 8vo. pp. 407.
2. *Saginaw Valley. Statistics for 1867. Annual Statement of the Manufacture of Lumber, Lath, Shingles, Staves, Timber, Salt, &c. With Details of the General Business and Commerce, Coal and Plaster Developments, Fishing Interests, Resources, Progress, and Prospects of this Section of Northern Michigan.* Prepared for the Saginaw Daily Enterprise. By GEORGE F. LEWIS and C. B. HEADLEY, East Saginaw. 8vo. pp. 32. 1868.
3. *Lumber in Michigan. A Complete Statement of the Produce of Michigan Forests in 1867.* Detroit Post of February 6, 1868.
4. *Commerce of Detroit. Review for 1867 of the Operations in Flour, Grain, Lake Fish, Wool, Live Stock, and Produce.* Detroit Post of March 11, 1868.

THE official seal of Michigan presents an imposing picture of two stags rampant, holding up with their hoofs a broad shield, which bears the word, "Tuebor." Above this motto is, of course, the American eagle. Below it we see the rising sun, with a personage in the foreground who may be an Indian fleeing from civilization, or may be a pioneer with a pack on his back. Beneath this symbolical picture is the legend, varied from the epitaph of Sir Christopher Wren, "Si quæris Peninsulam amœnam, circumspice." The motto seems hardly appropriate for a territory so generally level as that of Michigan. There is no mountain within her borders, from which one may survey the goodness of the land; no Nebo or Pisgah commanding any broad prospect. And even if there were, the larger part of the land is still covered with forests, so that the curious eye would find little variety to delight it.

Yet the richness and various resources of the territory which has been laid open to culture and settlement fairly

justify the boast of the motto. Michigan, admitted as a State in the Union hardly thirty years ago, has already become one of the foremost States in industry, in intelligence, and in influence. It has more of the New England civilization than any of the new States. Though not settled mainly by pioneers from New England, it gives to the nation to-day many of the things which New England has given so long. Its territory is about as large as that of all New England. Maine could be almost inscribed in the Upper Peninsula, and the other New England States in the Lower Peninsula. It has a coast line nearly as long as that of New England, adding even Lake Champlain to the bays of the Atlantic,—a longer coast line than any of the old Atlantic States. Its water front on the great inland seas is more than one thousand miles; and it is bounded by five of these seas. Though the country is not hilly, it has inland lakes in bewildering number; three thousand of them, large and small, are reckoned in the Lower Peninsula. The rivers do not make much show upon the map, yet they are numerous, and some of them are more than two hundred miles in length. The Grand River rises within seventy miles of Lake Erie, and flows through three cities before it reaches its outlet in Lake Michigan.

Twenty years ago the Lower Peninsula of Michigan was a serious obstruction to travel between the East and the West. The only way to get by it was to go round it, in a fatiguing steamboat trip of four or five days. Now three great lines of railway cross the State from east to west, cut by other lines from north to south. Thirty years ago there were not ten towns in the State with one thousand inhabitants. Now there are *nineteen cities*, with mayors, aldermen, streets lighted by gas, great public halls, and all the conveniencies of city life. In Jackson, where only thirty years ago a child, going to a neighbor's house in the daytime, was kidnapped by the savages and carried off, are now ten thousand people dwelling; four railways meet there; and when, last year, "the long-lost boy," a chief and a medicine-man of a tribe of Rocky Mountain Indians, came back to his relatives, he was as much a wonder in the city as a Hindoo or an Australian would have been. Hardly any person in Jackson had ever seen an Indian.

Within the memory of many not yet old, bears came round the doors of log-huts where are now stone and iron fronts like those of Broadway; wild turkeys were shot on what is now the Campus of the most thronged University of America; and the peach-orchards, which now employ daily lines of steamboat in the season of the harvest to transport their redundant product, were only a pigeon-roost. Forty years ago there was not a flour-mill in Michigan, and the wheat-fields could be counted upon the fingers. Last year the receipts in the city of Detroit alone were nearly a million barrels of flour, and a million and a half bushels of wheat; and this leaves out of account what was consumed at home and shipped from other ports, — Toledo, Monroe, and Chicago. Indian corn is not properly a staple of Michigan; it is not supposed to do well in a latitude so far north; and yet, in 1867, nearly a million bushels of it were received in Detroit by the railways. In 1820, except in the neighborhood of Detroit and the old French settlements, an apple-tree in Michigan was a rare curiosity; there were not “sour-apple trees” enough to make cider for a single family. Now some counties in Michigan probably raise more apples than the whole State of Rhode Island, and of the finest varieties. Apples are sent from Michigan to Chicago and Milwaukie, to New York and Boston, to Louisville and Portland. It is a “light crop,” when only fifty thousand barrels are received in Detroit. Cider is made in such quantities that it is not worth while to estimate it. The farmers drink it on their premises, but do not care to transport it. A few years ago all the grass-seed used in Michigan had to be imported. Now there is hardly a State in the Northwest to which Michigan does not send grass-seed: *more than two million of pounds* passed through the markets of Detroit in the last year. The “paradise of bees” is in these great clover-fields. Even the improvements in agricultural machinery cannot keep pace with the developments of agricultural production.

Fifty years ago there were wolves and wolverines in Michigan in troublesome abundance, but there were no sheep for them to carry off. Now from the settled parts the wolves and wolverines are gone, while the sheep are in every pasture, and the

railway trains are burdened with their fleece. *Fifteen million pounds* of wool were sold in Detroit in the year 1867. At the fancy, almost fabulous, prices put upon choice animals, a single flock makes a considerable fortune. A farmer who goes coarsely clad, and lives in a low cottage, will show lambs which he values at two or three or four thousand dollars. Michigan is already the fourth, perhaps the third, wool-growing State in the Union, and has along her streams a fair proportion of woollen-factories.

There are other industries of which we might speak, — the great mining interests of the Upper Peninsula, in copper and iron; the fishing interest, rivalling that of the Newfoundland Grand Banks, and far surpassing that herring interest on which so much legislative time has been spent in Massachusetts; the making of maple-sugar, which employs so many farmers in the month of March; the pork crop, increasing year by year. But we pass these and other interests by, to give a more detailed account of the business which has had the most rapid and remarkable expansion. The lumber trade of Michigan is one of the surprising phenomena of the West, surpassing all prophecies and calculations.

The Saginaw Valley was opened to civilization less than thirty years ago. An octavo volume of four hundred pages tells its history and records the enterprise, the sagacity, and the success of the “pioneers.” An annual “statement” of the manufactures of the valley enables one to mark the growth of the business as it has gone on from year to year, almost in geometric ratio. But the Saginaw Valley does not now include all the lumber trade of Michigan. It has been opened in other parts, — on Lake Michigan, on Lake Huron, at Grand Haven, Manistee, Muskegon, Père Marquette, Port Huron, and elsewhere. The grand total of lumber cut in Michigan in the year 1867, excluding firewood, but including timber cut for export, as summed up in the able and concise survey of the Detroit Post, was one billion three hundred million feet, the aggregate value of which was more than twenty-three and a half millions of dollars. The mill property on streams finding their outlet in Lake Huron was over five millions of dollars, and of mills on the western side of the

State over two millions of dollars. The whole amount of money invested in saw-mills, large and small, in all parts of the State, is estimated at more than eight millions of dollars, and the whole number of these mills is reckoned at six hundred and sixty-five. The largest, that of Sage, McGraw, & Co., at Wewabka, employs one hundred and sixteen men and requires five steam-engines to work its machinery. In 1867 it sawed eighty-two thousand logs, — an average of about four hundred for each working-day.

The whole Lower Peninsula of Michigan was, a few years ago, covered with forest, as we have already stated. There were some small prairies in the southern section, but their united area was insignificant compared with that of the timbered land. The streams and the low hills alike were hidden by the dense growth of maple and beech, oak and ash, hickory and walnut. A great deal of this wood has already been cut off. The burr-oak, a sure sign of a rich wheat soil, has mostly disappeared, and is kept more as the ornament of city streets than in its original groves. Kalamazoo, one of the most beautiful and thriving of the Michigan towns, is built in one of these burr-oak groves, the surviving trees of which shade its miles of avenues with their dark foliage, and stand like gigantic sentinels on either side of the roadway. The hickory, too, has been sadly thinned off, and its tough wood is almost as dear in Southern Michigan as in Massachusetts. Along the railway lines the ravenous engines devour the forests with a voracity never satisfied; and already, in the long reaches of cleared land, one wonders where locomotive food is to come from after another decade. But in the territory north of the Detroit and Milwaukee Railway, including about two thirds of the Peninsula, the primeval forests still hold their glory and grandeur, and, except in the lumber enterprises of the last few years, have been hardly encroached upon. From the forty-third parallel of latitude to the Straits of Mackinac, which are close on the forty-sixth parallel, a distance of nearly two hundred miles from north to south, with an average breadth of more than two thirds of that distance, the region is still heavily wooded, and a very small part of the soil is under culture. North of latitude forty-four degrees there

is hardly an inland town. This immense tract is divided into more than forty counties, many of them containing more than eight hundred square miles of territory. On the other side of the Straits of Mackinac, too, and all along the shores of Lake Superior, the forests are nearly as vast and thick; and lumbermen are already beginning to work in this broad field of the Upper Peninsula.

In the dialect of the forests a distinction is made between *lumber* and *timber*. Lumber is pine wood, timber is wood of the harder varieties; though the phrase "pine timber" has meaning and fitness as applied to heavy beams and joists of that wood.

The "lumber region" is the region in which the pine grows in sufficient quantities and of suitable size for use in the saw-mills. There may be a pine country which is not really a lumber country, as, for instance, the old Colony of Massachusetts. It is not necessary, to make a good *lumber* region, that the pine should be the exclusive growth, or that it should grow in large, compact masses. The best pine is found among trees of firmer grain. The "pineries" of Michigan differ from those of the Eastern States in being less homogeneous. On the best pine lands the quantity of hard wood is often considerably greater than that of pine. The lumberman picks his trees from the mass, and after he has cut all the lumber from a tract, an unpractised eye might not see that anything of importance had been taken off from it. If the settler does not come after him with axe and fire, the breach in a little time will seem to be healed, though the pine does not grow again. Though the stumps and roots of the pines are slow to decay, and vex the farmer by their obstinate vitality, they send up no fresh shoots.

When the manufactured lumber of a tract averages five thousand feet to the acre, it is regarded as good pine land. It is worth working when even two thousand feet can be cut from an acre, if there be easy communication with some stream. Often, however, fifty, sixty, and seventy thousand feet are cut from an acre. In the best lumber counties there are many sections which yield twenty thousand feet to the acre. The lumber region is principally within the thirty

counties, more or less, drained by the Muskegon and Manistee Rivers, which empty into Lake Michigan, and the Saginaw and its tributaries, which empty into Lake Huron, stretching in its broadest part, from lake to lake, two hundred miles across the State. Thunder Bay on Lake Huron, and Grand Traverse Bay on Lake Michigan, may be regarded, at present, as its northern limit. In all this region the pine is found, in some parts scattered, in others growing abundantly. It is difficult to estimate the exact extent of the pine lands, since the surveys have not been thorough, and much of the wilderness is yet unexplored; but it is hardly an exaggeration to say that there are from five to ten thousand square miles on which pine may be cut with profit. In some parts the pine-trees are comparatively scarce, and the maple and beech hide the softer wood. In other parts the growth of pine is almost equal to that of the forests of Maine.

The pine which grows in this lumber region is of excellent quality, free from defects, and fit for all the uses to which that wood is put. There are three varieties,—the Cork pine, called in New England the white pine, yielding a tough, straight-grained wood, from which the best boards are made; the “sap” or “sapling” pine, used for fences, floors, and work in which nice finish is not required; and the Norway pine, which supplies a wood that decays slowly, and is used for bridges, decks, and vehicles of various kinds. All these varieties are easily wrought, and the Cork and Norway pine are wholly free from pitch. The Cork pine trees are often found of a very large size. It is not uncommon to get perfectly straight stems eighty and a hundred feet in height, measuring six feet in diameter at the base. Logs less than three feet in diameter are counted “under size” by many lumbermen. There is comparatively little wood of irregular or inferior growth, and the lumberman has much less to reject as not worth cutting than in the Eastern forests.

The pine is not the only evergreen of this region. There is hemlock in abundance, which will, in some places, pay for working; there are swamps of cedar; and the spruce occasionally shows itself. The tamarack swamps furnish ship-timber, which is demanded more and more by the immense

commerce of the Lake. Where bass-wood grows near the streams, it is saved and floated to the mills; and some use is made, too, of the ash and the elm, especially for salt-barrels. In some districts, particularly in Genesee and Shiawassee Counties, the elm abounds. Its spread is not so broad as that of the elm in the valleys of the Connecticut and the Nashua, but it has the same graceful outline and lends an equal charm to the landscape. In the pine region, too, there is an ample supply of black-walnut, butternut, and wild-cherry, which would be of great value were the market nearer. Immense quantities of these woods are wasted by the settler, to make room for his wheat and potatoes and grass. He burns without compunction what would make his fortune in New York or Boston.

The best quality of pine is that which is cut in the Saginaw Valley, in the region drained by the Saginaw River and its tributaries. This includes the twelve counties of Tuscola, Lapeer, Genesee, Shiawassee, Livingston, Gratiot, Isabella, Clare, Gladwin, Roscommon, Midland, and Saginaw. The Saginaw River itself is a short stream, some twenty or twenty-five miles in length, important rather as the mouth of its tributaries than from its own size or beauty. Its banks are low and marshy, its current is sluggish, and its waters are not transparent, like those of the beautiful bay into which it flows. It is really the union of four long rivers which come from the east, the south, and the west, — the Cass, the Flint, the Shiawassee, and the Titibawassee. The most western of these, the Titibawassee, is also formed by the union of four rivers. The Cass River, flowing westward, drains the counties of Huron, Sanilac, and Tuscola; the Flint River, flowing in a very winding course, but generally northwestward, drains the counties of Lapeer and Genesee; the Shiawassee, flowing northward, drains the counties of Livingston, Shiawassee, and Saginaw; and the Titibawassee, flowing eastward and southeastward, drains the counties of Gladwin, Roscommon, Clare, Isabella, Montcalm, Gratiot, and Midland. These rivers, from sixty to a hundred miles in length, are crooked, narrow, shallow, sometimes swift in their current, and interrupted by rapids. They are supplied by innumerable smaller rivulets, and bring a large

volume of water to the Saginaw. The Saginaw itself is some seven hundred to eight hundred feet in width, and at its mouth is an estuary, like the Thames, into which large vessels easily enter. Few of its tributaries are navigable except for very small vessels. The whole product of the valley is gathered into the Saginaw, except that which is manufactured in the interior towns and carried by rail directly to Detroit or Jackson. Two railways have been built through the region, — the Flint and Père Marquette, and the Jackson and Saginaw, — and others are in progress. But by far the larger part of the lumber is still floated down the streams to the main river, arrested at the boom, and there distributed to the great mills, to be converted into boards, staves, shingles, laths, and pickets, thence to be shipped in every direction. The chief mills, with the exception of those in the city of Flint, are all upon the banks of the Saginaw River.

It is twenty years since the Saginaw Valley first began to be mentioned as a lumber region, though two cargoes of lumber were shipped from there as long ago as 1836. Before that time Saginaw was only an Indian trading-post, where blankets, provisions, rum, and tobacco were exchanged for furs, skins, and game. Until the year 1819 the whole Saginaw country was in undisputed possession of the Indians, mostly of the Chippewa tribe, though there were Ottawas among those who put their names to the treaty which extinguished the Indian claim to the territory. This treaty was negotiated by General Cass, the pioneer of Michigan, in September of the year above named. He made the journey in state, with a full staff of aids and interpreters, through the woods and down the valley of the Flint to the trading-post of Mr. Louis Campan, where is now the city of Saginaw. Here Mr. Campan had built a grand council-house on the bank of the river, — an open booth several hundred feet in length, with the living trees for columns, and interlaced boughs for the roof, a raised log platform for the commissioner and his suite, and rough logs for seats for the Indians. The sides were left open, and the company were free to come and go. The negotiations lasted nearly a fortnight, but there were only three solemn sessions of the council. At the third of these, which was the day of final decision, it is

said that not less than fifteen hundred Indians were present. It was by no means an easy thing to complete the treaty. The eloquence of the commissioner was not at once convincing to the chiefs, who could not appreciate the justice of removing them from their homes to the distant West, or the value of the equivalent offered for their land. But, in spite of objections and remonstrances, the treaty was completed by judicious management, and by the aid of a trader, Smith by name, who had married into the tribe, and was treated by the chief as a brother; and the innocent Indians consented to sell, for a few thousand dollars in silver and the reservation to them of some thousands of acres of hunting-ground, what is now more than half of the Peninsula of Michigan. The sessions of the council ended in a grand drunken riot, in which fifteen barrels of whiskey were consumed, blows were exchanged, and at one time the commissioner and his friends were in fear of a general massacre.

To removal beyond the Mississippi, however, the Indians would not consent, and that project was for the time given up. For ten years after this the settlers of the Saginaw Valley were mostly Indian traders. The American Fur Company had an agent in Saginaw, and the government had a military post there as early as 1820. But the real development of the region dates from about the year 1835, when plans of the valley and the river banks began to be made, and "lots" were offered in the market. The earliest landed proprietor was Dr. Charles Little of New York, who had examined the region repeatedly, discovered its remarkable value and resources, and secured in the years 1823 and 1824 a prior right to buy the lands when they should be put into the market. He did not, however, occupy the ground, and more than ten years passed before his son, Mr. Norman Little, the real pioneer of the valley, fixed his home there. In 1836 Indian trading in the region had mostly ceased, the Indians had moved westward, and the wood-chopper had begun his work of settlement and civilization. A few Indians remain in the northern part of the Peninsula and in the interior counties, but they have gone from the banks of Saginaw River. Some legends of their battles still exist; and Mr. William McCormick, of

Portsmouth, tells, in the History of Saginaw, how the rival tribes fought at Skull Island, Flushing, Bridgeport, and elsewhere. These battles were between the "Socks" and the Pottawatomies, before the Chippewas got possession. Afterward, according to Mr. McCormick, the spirits of the exterminated Socks haunted the shores of the rivers, and killed their enemies who came there to hunt and fish. The region was dreaded and was deserted by the tribes, who made it a place of punishment for transgressors. The bones of the slain, piled in great masses, have been found as the mounds on the river have been opened. These Indian traditions are to be received cautiously, and are not readily verified. It is not probable that much will be learned of the Saginaw Valley prior to the treaty of Cass with the natives. Mr. McCormick had an interview, in the year 1834, with a very old Indian, "whose faculties were as bright as a man of fifty," but "who thought he was a great deal over one hundred." This old man, Puttaguasamine, is the authority for the romantic narrative of the Battle of Skull Island, and the disastrous fortune of the Socks, who once were lords of the soil.

The real settlement of the Saginaw Valley, for the purpose of developing its resources, begins in 1836, when Mr. Norman Little took up his residence there. In that year Saginaw City consisted of a hotel, two stores, two dwelling-houses, and "several other buildings," and seemed to be fairly established. But in the next year, 1837, the great commercial revulsion which swept over the land was felt in this distant settlement, and its growth received a sudden check. Its progress was slow for several years. In 1850 the city contained six wholesale and retail stores, five carpenter and joiner shops, three boot and shoe shops, three blacksmith shops, one bakery, one steam saw-mill, one paint shop, three hotels, three grocery and provision stores, and two other places of retail trade, with a permanent population of five hundred and thirty-six. Of course a large part of the trade was with the lumbermen. In 1857 a city charter was granted, and since that time the population and wealth of the city have increased with great rapidity. It has, at present, over six thousand inhabitants, a capital reckoned by millions, school-houses as large and costly as

those in the richest of the New England cities, six hotels, seven or eight churches, and a full supply of professional men, — lawyers, doctors, editors, and the rest. In the village of Salina, a mile or two farther up, on the opposite side of the river, is a population of two or three thousand more. The city of East Saginaw, some two miles below Saginaw proper, under the eastern bank of the river, in 1850 was only the “Hoyt Plot,” with one small cottage, one board shanty, and one log-hut, occupied by an Indian trader. In eighteen years the Hoyt Plot has grown to be a city of over twelve thousand inhabitants; on the site of the board shanty stands the Bancroft House, built eight years ago, at a cost of \$90,000, one of the most admirably kept hotels in the country; a double line of horse railroad connects the city with Saginaw and Salina; and there are miles of streets, with great blocks of brick and stone warehouses. Bay City, four miles from the mouth of the river, was an Indian trading-post until 1836; it was laid out as a town in 1837, in 1865 became a city, and has now an estimated population of some seven thousand. Portsmouth, a few miles above it on the river, has a population of two or three thousand. Wenona, opposite to Bay City, has probably a thousand permanent residents. And it is safe to say that more than thirty thousand persons have their homes at present on the banks of the Saginaw River.

No contrast can be greater than the contrast of the quiet of the Saginaw River thirty years ago and the activity and movement seen there to-day. In the summer the river is alive with craft of all kinds, large and small, steamships of a thousand tons and little tug-boats, which dart up and down like their namesakes on the Thames or in New York Harbor. About forty of these tug-boats are employed on the river. Lines of propellers ply in every direction, and there are countless barks and schooners. The seventy saw-mills along the banks fill the air with their continual murmur. Great piles of lumber, stacked upon the long wharves, rise from the water-side. The massive bridges which span the broad stream are thronged with passengers and vehicles. Wreaths of smoke float off to the bay from a hundred tall chimneys. Huge logs, jammed together, hide long reaches of the water by their mass,

and you see the strange, half-clad Tritons plunging and leaping and hauling among them. On the elevated tram-ways small mules draw cruel loads, and on the inclined planes there is incessant pulling and sliding. In some places acres of the bank are white with the refuse sawdust. From the opening of the season in April or May to the close in November the stir of industry is incessant.

But the summer life of the river depends upon the winter life of the forest. Year by year, as the wood is cut off, the lumberman has to go farther in from the main stream, and the log has a longer journey to make before it gets to the mill. The first party of woodmen usually go out in November, as soon as the ground begins to freeze; they select a place for their camp as nearly as possible in the centre of the "lot" which they are to work upon, taking care to get a dry soil, in the neighborhood of some spring or brook; they build a log-house, and cut a road to the nearest stream, on which the logs must be floated down. The log-houses are large enough to accommodate from twenty to fifty persons. In the centre a raised fireplace is built, directly under the apex of the roof, and the only chimney is a tunnel above this fireplace. The work of wood-cutting begins as soon as the road is finished and the ground becomes hard enough to haul the logs, — usually early in December, — and it is continued until the streams break up in the spring. The daily wood-chopping begins with the early morning, and is kept up so long as there is light. In the evenings the woodmen sit around their fire, play cards, smoke their pipes, tell stories, and sometimes get up rude dances. There is very little drinking among them during the season of work in the woods. Suttlers are not allowed upon the premises, and the men have usually no money to buy liquor. They are paid by the day, and supplied with suitable food by their employers. Pork and beans, dried fish, bread, and tea are the most approved articles of diet. Coffee is not generally provided, and the delicacies consist chiefly in the wild game which the woodmen themselves may chance to catch. There is plenty of this to be had, if there were time to take it; for the woods are still full of squirrels, rabbits, coons, deer, and black bears,

whose flesh is not unpalatable: the streams, too, are full of fish. But the men are too busy in their craft to do much fishing or hunting, and are content with their simple, but nourishing, regular fare. In addition to their "nourishment," they get, on an average, about a dollar a day for their labor. The whole gain of a lumberman, in his winter's work, is about a hundred dollars, which a new suit of clothes and a few weeks of sport in the spring generally exhaust. The life of lumbermen is like that of sailors, and very few lay up the fruits of their toil. In character, the men are quite as good as the average of those who lead a roving life. A large number of them work in the mills in the summer season; some go on farther west; and others go home to their friends in Canada or Maine. Comparatively few of the wood-choppers are Germans or Irishmen, though there are parties of both these races. They are gregarious in their habits. In cutting trees they go in pairs, and very few of them are willing to live in separate huts or away from the camp. They sleep along the sloping side of the house, with their feet inwards, toward the central fire, which is kept burning during the night. They dispense with prayers and preaching, and make little account of Sunday. A few have books, but the taste for reading is not general; mending clothes and sharpening axes, with such amusements as we have mentioned, fill the spare time. Their occupation is healthy and cheerful. The stock of medicines rarely needs to be replenished, and there is not much for a physician to do in their strong-armed company.

A gang of forty men, it is estimated, will cut, in the course of the winter, three million feet of lumber, the product of about five hundred acres, and draw it to the streams. Only the trunks of the trees are saved for lumber. These are sawed into logs of twelve, fourteen, or sixteen feet in length, according to their diameter and the width of the stream down which they are to be floated. It needs some art to launch them properly, and to place them so that they will float freely when the ice breaks up in the spring. A few inches of snow upon the ground greatly assist the lumber operations, by enabling the men to substitute sledges for the drag with its heavy weight and its friction. As the lumber territory retreats farther

inland the streams grow smaller and transportation is more difficult.

The logs as they are cut are marked with the private mark of their owners. When they reach the main streams they are caught and bound into rafts, guided down to the main river, and distributed to the various booms of the mills. The Titibawassee Boom Company, organized in 1864, rafted out and distributed in that year ninety million feet of lumber. In 1867, the fourth year of their operations, they rafted and distributed more than two hundred and thirty-six million feet. They used, in their rafting work, more than \$20,000 worth of rope. They have now twelve miles of booms, and they employ two hundred and fifty men, who work through the summer, and are usually unable to bring down all that is cut during the winter. The actual number of *logs* rafted by this company in 1867 was 958,117; and adding to these the long timber, square timber, flat timber, and piles, the number of *pieces* was 967,695. To supply this great product, 150,000 to 200,000 pine-trees must have been cut down; and this is only the work upon a single one of the four branches of the Saginaw. On the Cass River there were rafted down, in 1867, 232,469 logs, yielding 74,643,300 feet of lumber. On the Flint River only a small part of the yield is rafted down, as there are many inland mills; the best lands on this river, too, have already lost their timber. But in 1867 five and a half million feet were floated down it to the Saginaw River, in addition to fifty-five million sawed in the nine mills of the city of Flint, which has been made by the enterprise of Governor H. H. Crapo, a Massachusetts man, one of the great lumber centres of the West, though it is not near any navigable water.

The working season of the saw-mills varies with the late or early opening of the streams, but lasts on the average for eight months of the year. Some of the mills keep a surplus of logs in their booms through the winter, that they may be ready for work earlier in the spring. Many of the mills run night, and day, with double gangs of men. A few of the smaller inland mills use water-power, but the larger mills are run by steam. The fuel for the engines, of course, costs nothing. The refuse slabs and sawdust of all the mills far more than supply all that

is needed. Attached to the larger mills are long piers and platforms, from which the lumber is lowered directly to the decks of the vessels. Most of the mills saw only boards, but in many there are saws which cut staves, shingles, shooks, laths, and long timber. The staves and shooks, however, being made from red and white oak, are hardly to be included among the lumber products proper. "Portable" saw-mills are getting to be common in the inland places. All the larger mills have, at least, one circular saw, and one or more "gang" saws. In the great mill of Sage, McGraw, & Co., the invested capital of which is \$300,000, there are four gang-saws. The whole number of mills in the Saginaw Valley, or tributary to it, exclusive of those at Flint, was, in 1867, *eighty-two*, with an invested capital of \$3,428,500. In these mills there are seventy-five circular saws, sixty-nine vertical or "muley" saws, and thirty-nine gang-saws,—one hundred and eighty-three in all. The lumber manufactured in these mills, boards and shingles, amounted to 423,960,190 feet, which is but little more than half their capacity. The aggregate of logs in the booms was 17,304,605. The number of men employed in these mills was 2,402. In addition to this lumber, nearly sixty-four million laths were made during the year. Of this vast product of the year, less than one eighth remained unsold at the close of work in the winter. About four hundred million feet of manufactured lumber were actually transported from this valley during the summer and autumn of the year 1867. Figures like these oppress the imagination. And yet the product of the Saginaw mills is only a part of the product of the Saginaw Valley. We have to add to these the nine large mills in Flint, with their product of fifty-five million feet of lumber, nine and a half million laths, and six million feet of shingles.

The opening of the Saginaw lumber region stimulated the opening of other lumber regions both on the east and west sides of the Peninsula; and a complete statement of the lumber product of the State takes in a very wide range, from Port Huron to Alpena, from Grand Haven to Grand Traverse. Port Huron, at the outlet of Lake Huron, where the Black River empties into the St. Clair, is the nearest of all the depots

of lumber to the Eastern markets. The Grand Trunk Railway has here one of its principal stations, and all the commerce of the Upper Lakes passes by this harbor, if harbor it can be called. Here there are seven mills, which in 1867 sawed nearly thirty million feet of lumber, and more than thirteen million laths, with a market value of half a million of dollars. This by no means, however, exhausted the product of the Black River country. Nearly sixty-five million feet of logs were inspected in this river in the year 1867. In Sanilac County, through which Black River flows, there are ten saw-mills, which, in 1867, produced more than a million and a half dollars' worth of boards, laths, and shingles. Huron County, still farther north, lying between Saginaw Bay and Lake Huron, gathered at its half-dozen small landing-places not less than thirty-five million feet of lumber, and seven million laths, with an aggregate value of \$550,000. In Iosco County, next north of Saginaw Bay, the production amounted, in 1867, to \$300,000. Here a new "city," Tawas, is rapidly rising, and there are already half a dozen mills. In Alcona County, watered by the Au Sable River, the county seat, Harrisville, reports a product of seven million feet. On Thunder Bay, the town of Alpena has eight mills, which, in 1867, manufactured nearly fifty millions of lumber and lath. The whole product of the Bay Shore, north of Saginaw, to Thunder Bay, is reckoned, for 1867, at eighty-five million feet of lumber, and twenty-three million laths, cut with forty-three saws in nineteen mills. The whole product of the eastern shore of Michigan, as summed up in the estimate of the *Detroit Post*, amounts to 713,507,460 feet of lumber, 126,922,500 laths, 68,200,000 shingles, with an aggregate value of \$11,826,338. In getting out this product, 5,143 men were employed. These figures do not perfectly agree with the statistics of the Saginaw Valley, but are not far out of the way as a trustworthy estimate. The actual value of the lumber sawn in Eastern Michigan, in 1867, cannot have been far from \$12,000,000.

Turning to the shores of Lake Michigan, we find another lumber region of great promise, the development of which has hardly begun. The Muskegon River, with its tributaries, drains a vast country, and flows through six counties before it reaches

its outlet in Muskegon Lake, after a winding southwesterly course of more than one hundred and fifty miles. Sixty miles farther north, the Manistee, a large river, with numerous branches, empties into Lake Michigan, after flowing through four counties. Grand Traverse Bay, a deep inlet of Lake Michigan, in latitude forty-five, is the basin in which numerous small rivers find their outlet. All these rivers have begun to assist in carrying the pine of the forests to a market. In the Muskegon region there are twenty-nine mills, employing thirteen hundred men, which produced, in 1867, \$3,255,433 worth of lumber and laths. In the Manistee region there are twenty mills, with a product of \$1,500,000. In the Grand Traverse region there are nine mills, with a product valued at \$355,590. Considerable quantities also are made and shipped in Ottawa and Oceana Counties, on other streams than the tributaries to the Muskegon. Père Marquette, in Mason County, will be an important port in the lumber traffic, when the railroad, now in progress, from Saginaw across the State shall be completed. From Grand Haven, the terminus of the Detroit and Milwaukee Railway, the shipments in 1867 amounted to over sixty-eight million feet of lumber, nineteen million shingles, and nearly twelve million laths. The whole product of the western shore of the Peninsula, in 1867, was 492,044,000 feet of lumber, 84,457,000 laths, and 26,786,000 shingles, having an aggregate value of \$7,910,023. It is estimated that 3,710 men were employed in the business. The average quality of the lumber on the western shore is hardly equal to that upon the eastern. More of the sapling pine is cut, and the trees are smaller in size. To the product of the eastern and western shores of the Lower Peninsula should be added that of the vast Menominee region in the Upper Peninsula, a tract as large as all the lumber region of the Penobscot Valley. Very little as yet has been done in exploring that region, and its capabilities for lumber production have not been ascertained. It belongs geographically rather to Wisconsin than to Michigan, and should be described in connection with the promising region of that great State.

The statistics of the Lower Peninsula thus far given are

enough to show what marvellous wealth Michigan has in her forests, and to account for the fact that her supply is now the main reliance of all the Northern States, exceeding all that Maine and Canada have to give. All the markets of the West, and most of the markets of the East, now get their lumber from Michigan. Lumber vessels ply from the Saginaw River to all ports on the Lakes, from Chicago to Buffalo, and even go through the Welland Canal to the St. Lawrence River. Michigan lumber is carried through the woods of Canada to its market. It is sent across the plains to St. Louis and Cincinnati and down the Mississippi. It is sent across the mountains to Philadelphia and Baltimore. It is sold on the seaboard and in the interior, — transported by canal and by railway. Probably more than half the houses built in the Northern States in the last year used the growth of Michigan forests in their construction. Of the four hundred million feet of lumber received at Albany by the canal a very large part came from Michigan. The tonnage of vessels engaged in this traffic is larger than the tonnage of many of the commercial cities. Probably as many vessels pass up and down the St. Clair River daily, in the height of the lumber season, as pass by Boston Light. In the Saginaw River itself, in the last year, twenty-one vessels were built, two of which were barks and four propellers. Of course, the chief markets are the six leading Lake cities, — Chicago, Milwaukee, Detroit, Toledo, Cleveland, and Buffalo. From these points the lumber is distributed to the principal cities of the West and the East. Not unfrequently, however, it is sent on an ocean voyage. The Detroit Post gives a list of twenty-two lumber vessels which cleared in a single year for foreign ports, — Liverpool, London, Glasgow, Cork, Hamburg, Calais, and Cadiz. The traffic shows no signs of falling off, and a comparison of years shows it steadily increasing. A ship-canal around Niagara Falls would assist the lumber interest hardly less than the grain-growing interest of the West.

It is common to speak of the pine lands of Michigan as “inexhaustible.” We hear of the supply that may be expected for “ages to come” from this prolific source. Men think of the lumber forests of the Peninsula as they do of the

coal-beds of Pennsylvania and Ohio, and laugh at the predictions of the alarmists. Yet these predictions are not hasty, but are based on exact calculations. At the present rate of consumption, in *a little over seventeen years* the pine will be entirely cleared from Lower Michigan, and the lumber business will be at an end. If consumption in the next five years should increase in the ratio of the last five years, *ten years* will exhaust the material. The most sanguine calculation cannot carry the lumber business beyond the present century. It is believed, however, by those who are best acquainted with the history of lumber operations, that the annual production has reached its highest point, and is more likely to decline than increase. The tendency is more and more to concentrate the business, and the owners of the large mills are becoming the owners of the lands. As this concentration goes on, the small mills must cease to work for want of material, and the larger proprietors will be able to economize their resources. Some of them already are holding eligible lands, in view of a future scarcity and a rise of prices. The opening of new pine lands in Wisconsin and Minnesota may draw off a considerable part of the traffic. Such considerations as these help to quiet the fears of those who have invested largely in mills and machinery, and in real estate in the new cities. Yet one cannot resist the conclusion that if Muskegon, Saginaw, and the rest depend upon the lumber interest to sustain them, they will decline as rapidly as they have risen. There is no good reason to think that the consumption will fall off, while the facilities for getting the lumber to market are so great, and so many markets are calling for a supply. The waste will go on. The owners of the land will use their opportunity, and will let the future take care of itself. They would not be American, if they should voluntarily curtail a profitable business, in view of spreading it over a longer succession of years. It is more probable that new mills will be built than that those already built will reduce their production or their capacity. The warning is not new. It was uttered years ago, and has been repeated with the succeeding seasons, yet thus far with no effect.

Fortunately, these new cities are not entirely dependent upon

the lumber business. As this industry declines a more permanent industry takes its place. The pine lands of Michigan are not, like the pine lands of the Southern States, "Pine Barrens." They are excellent for farming purposes, — for fruit, tillage, and pasture. The finest wheat grows on tracts from which the timber has been cut. These tracts are inviting to the settler, not only from the cheapness of the land, — which is almost given away by the lumber-merchant, who has no use for it when the trees are cut off, and is glad to escape his taxes, — not only from its cheapness, — a dollar an acre or thereabouts, — but because roads are already opened, the land partially cleared, and the markets for produce secured. Thirty years hence, if the land be denuded of its forests, it will show a wheat region more marvellous in its breadth, richness, and promise for the future than the pine region of the present day, — a wheat region which may with more reason be called "inexhaustible." Several counties which were lumber counties a few years since have now become noted for agriculture, and export largely the products of the farm and the field. Genesee County, for instance, of which Flint is the county seat, has a broad expanse of rich grain-fields around its central group of saw-mills, and the time is not far distant when the dull rumble of the mill-stones will drown the shrill scream of the saws.

In this rapid development the waste of timber is inevitable. The hard wood might be valuable hereafter, but is a nuisance now, and must be got rid of, so it falls after the pine by the settler's axe, and is wantonly burned. It is useless to remonstrate. The pioneer is insensible to arguments touching the future supply; to him the forest is only fit to be exterminated, as it hinders his plough and obstructs his sunlight. When Northern Michigan becomes, like Southern Illinois, a great rolling prairie of grass and grain, whose horizon is unbroken as the horizon of the ocean, the want of foresight that permitted the destruction of these magnificent forests will be bitterly lamented. But the lament will come from the next generation: the people of this will only boast the swift change of the wood and the wilderness to the fertile field, and exult in

the lines of towns and cities which spring up along its water-courses and overlook its lakes.

Yet not all the pine lands of Michigan are susceptible of cultivation. There are swampy tracts, which will require deep and extensive draining before being available for agriculture. There are sandy tracts, that must be greatly enriched before they can be made productive. Bad River, one of the best lumber tributaries of the Saginaw, will always vexatiously annoy the owners of the low lands which it washes. Perhaps the proportion of good farming land in the pine region is not greater than in the southern section of the State. But when the railways are built and the interior counties are brought into closer intercourse with the marts of trade, as they will be in twenty or thirty years, the man who to-day invests his five hundred dollars in the purchase of five hundred acres of this "exhausted" pine land will then find himself with a handsome fortune. Much of the wealth of Detroit has come from the lumber business; but the surest fortunes have been, and will be, gained from the culture of the soil. It is a consolation for those who see with sadness the felling of the forests, that the farmers follow the wood-choppers so closely, and create where the pioneers destroyed.

The western slope of this forest country, all along the shores of Lake Michigan and for some miles inland, has been found especially favorable to fruit culture, — to that of the grape and the peach not less than of the apple. The high latitude does not produce a lower temperature, for the waters of the lake soften the winds which sweep over them. The climate of the eastern shore of the lake is far milder and more equable than that of the opposite shore, and resembles the climate of Ohio and Indiana. Scientific men predict that the vine will flourish around Grand Traverse Bay, and bear as abundantly as on the islands of Lake Erie, or on the hills around Cincinnati. Thousands of acres have already been stocked with peach-trees, and Muskegon will soon be as famous for exporting "baskets of summer fruit" as it now is for sending boards and laths to the cities of the Lake. Even on the newly cleared land orchards and vineyards have been planted; vines with their clusters festoon the stumps of the pine-trees, which save to the vine-dresser the expense of terrace and trellis.

The Saginaw Valley, when its lumber trade shall fail, has its salt-works to fall back upon. Thirty years ago geologists predicted that salt-springs would be found by boring anywhere in this valley. Dr. Houghton, the State geologist, began his experiments in 1838, confident of success, and soon proved that the whole valley was a basin of salt beneath the surface. The experiments were costly, and after a time were abandoned by the State. In the excitement of the lumber interest the predictions and discoveries of Dr. Houghton were forgotten. Not till 1859 was a company formed for salt manufacturing, with a capital of fifty thousand dollars, and with promise of aid from the State as success should be attained. Boring was at once begun, and in February, 1860, the agents of the company were enabled to report that at the depth of six hundred and thirty-three feet they had reached, after piercing through layers of limestone, sandstone, shales, and coal, a water nearly saturated with salt. In the summer of 1860 the buildings for boiling and drying were erected, and the product of the first year, up to July, 1861, was ten thousand seven hundred and twenty-two barrels, of two hundred and eighty pounds each. The next year this product was trebled; new companies were formed; new wells were sunk; and, in less than eight years the salt-works of Saginaw have come to rival those of Syracuse in the quantity and the quality of their product. They differ from those of the Onondaga region in requiring deep wells. There is no surface brine here as in the New York salt district, but the shaft must be sunk for many hundred feet before the water is strong enough and the supply constant and sufficient for profitable use. The amount of capital now invested in salt-making in the Saginaw Valley is considerably more than two millions of dollars. There are one hundred and eleven salt-blocks, and over four thousand kettles, giving employment to six hundred and twelve men. The production has risen from 4,000 barrels in 1860 to 474,721 barrels in 1867. The business has had fluctuations, indeed, and money has been lost as well as made in the operations of speculators. In 1864 there was great over-production and prices fell off, diminishing the profits and the product of the succeeding years. But now the business is on a healthy foundation, economically

prosecuted, and certain of a steady growth and large future development.

The salt in the Saginaw Valley is made in different ways,—by solar evaporation, by boiling in kettles, by steam evaporation, and by the Chapin patent, peculiar to this valley. The fuel used for heating the kettles is the refuse of the saw-mills which would else be wasted. The steam used in heating the vats is supplied by the boilers in the mills, and is conveyed in pipes through the brine, driving off the moisture, and leaving finer crystals than those deposited by solar evaporation. The saw-mills and the salt-works are built side by side, and are worked to advantage in this close connection. Some of the wood that would else be wasted is made profitably into salt-barrels. The largest number of salt-factories is on the banks of the Saginaw River. At Bay City there are ten, at East Saginaw five, at Saginaw City six, and eight and six respectively at the two towns which bear the appropriate names of Salina and Salzburg. On Cass River there are three salt-factories and one on the Titibawassee. There is little doubt that a shaft sunk near any of the streams would bring brine to the surface. The waste waters of the salt-blocks have also their use. They contain chlorides, valuable in the manufacture of artificial stone, and in preserving fruit, and for other purposes in the arts. Already chemists are turning attention to these waters, as too valuable to be lost. It will not be many years before soda will be among the products of this valley. The salt-works, therefore, with their collateral branches of manufacture, and the agricultural development of the surrounding country, assure the prosperity of the Saginaw Valley, even when the lumber trade shall cease ; and this promise justifies what may seem the extravagant outlay of these new cities in highways, piers, river dredging, warehouses, and public buildings. And it is not unlikely that new kinds of industry may be introduced as the surrounding country becomes more densely peopled, and paper-mills, shoe-mills, screw-mills, &c., take the place of the silent saw-mills.

It is a favorite theory with many, that there are great coal-beds under the central counties of Michigan, and that the vast

forests on the surface are fairly matched by the fossil forests beneath the soil; that Michigan is really as rich in coal as any of the Western States. The experiments thus far made have not, however, sustained the theory. The attempt to find coal has, in most instances, proved a failure; and where it has been found, the veins are thin and hardly pay for working. In the neighborhood of Jackson, which, in position and variety of industry, is to Michigan what Worcester is to Massachusetts, several mines have been opened. The coal, though of a quality inferior to that of the Ohio Valley, is used in gas-works and for iron manufacture. In New Haven, in Shiawassee County, on the line of the Jackson and Saginaw Railway, coal of better quality is found; but nothing warrants the supposition that coal-mining will be carried on to any considerable extent in the Peninsula for years to come.

Another valuable mineral gives better promise. The city of Grand Rapids, not far from the mouth of Grand River, has been largely built up from the profits of its trade in "plaster." As long ago as 1841 it was discovered that there were beds of gypsum on the west shore of Saginaw Bay, some forty miles north of the mouth of the Saginaw River, in Iosco County, not far from the mouth of the river Au Sable. Excavations in the ravines, unscientifically attempted, failed of success, and for many years the hope of turning the discovery to advantage was given up. In 1861 Mr. Patrick, of Flint, tried the experiment of boring upon the ridges, and was rewarded by finding a very large bed of plaster close to the surface,—covering not less than four hundred and fifty acres. A flourishing village, appropriately called Alabaster, has grown up around the factory, which was established in 1862; and, with the improvements now in progress, it is expected that the annual production of this quarry and factory will amount to thirty thousand tons. In 1867 ten thousand tons were quarried. There is an ample supply of wood in the vicinity for the engines of the mills and for building and barrel-making. If this discovery shall be followed by similar discoveries in other localities, the plaster interest will be of the first importance. The quality has proved excellent for all purposes to which this mineral is applied.

The preceding facts concerning the lumber region of Michigan have been mainly compiled from the careful documents mentioned at the head of this article. As we have remarked, the figures do not exactly agree in these summaries. For convenience' sake, we give in a single table the product of the region, preferring the report of the Saginaw Enterprise, which has a semi-official character.

	Lumber manufactured in Michigan in 1867.
Saginaw,	423,963,190 feet.
Bay Shore,	84,995,772 "
Genesee County,	68,000,000 "
Detroit,	39,026,460 "
Tuscola County,	5,800,000 "
Port Huron,	30,000,000 "
Huron,	33,850,500 "
Marine City,	5,215,000 "
Lapeer County,	16,500,000 "
Gratiot County,	11,500,000 "
Sanilac County,	8,750,000 "
Muskegon,	205,278,000 "
White River,	80,000,000 "
Manistee,	110,400,000 "
Grand Traverse,	24,000,000 "
Père Marquette,	46,000,000 "
Western Slope, besides localities mentioned,	185,000,000 "
Total,	1,378,278,922

The value of this product, at an average of \$ 15 per thousand, is \$ 20,674,183.

Number of Laths manufactured in 1867, 284,646,200.

" " Shingles " " " 368,420,000.

This view of a single branch of productive industry may serve to show the importance of the young State of Michigan in the fraternity of the American Union. It would be pleasant to show the corresponding growth of the State in other directions, and to tell what its new people, coming into the forest and the wilderness, have done for education and religion, for good morals and good order. To-day Michigan has a population of more than a million ; six incorporated colleges,—one of them a University, with Law, Medical, Literary, and Scien-

tific Departments, and with more than twelve hundred students ; an Asylum for the Blind and the Deaf ; two Asylums for the Insane ; a Normal School ; high schools in every considerable town ; and a system of public instruction as thorough, as wisely adjusted, and as efficient as in any State of the Union, — so good, indeed, that private schools are hardly known. Pupils come from all the States of the West, not only to the University, but to the Union Schools of Michigan. The finest and largest buildings, most “beautiful for situation” and most convenient in their appliances, are those which are set apart for public instruction. No interest is so jealously guarded as this. Every city and every county has its superintendent of schools. There is the same zeal for education in the newer as in the older settlements, — in Saginaw and Muskegon as in Monroe and Detroit. The market for school-books in these forest cities is not less sure and regular than the market for boards and shingles. Classic and foreign learning flourishes on what were but yesterday Indian hunting-grounds ; and the youths and maidens know more of Goethe and Virgil and Xenophon than of the legends of the red-men. This strange mingling of ancient lore with the traditions of savage life is presented to us in the names of Michigan towns and cities : — Pontiac borders upon Troy ; just beyond Owosso is Ovid ; Metamora joins Attica ; Adrian is the next town to Tecumseh ; Athens is but half an hour’s ride from Wakeshma ; and in Lenawee County we find Rome and Palmyra close to Madison and Franklin. Enough of the Indian appellations are retained to preserve a native flavor amid the classic and romantic names by which the famous sites of Europe and Asia, ancient and modern, from Caledonia to China, are represented in this favored Peninsula.

C. H. BRIGHAM.